

The modified Gompertz model demonstrates a variable growth rate between two *Centella asiatica* phenotypes

ABSTRACT

Centella asiatica, a weakly aromatic plant that flourishes in wet tropical and sub-tropical areas as a medicinal species since ancient times. It contained important terpenoids that impart important medicinal values. Currently, studies on the terpenoid content of various *Centella asiatica* phenotypes have shown not only variable content but variable growth rates of different phenotypes that can affect future selection of phenotypes. The use of mathematical growth modelling can reveal important growth constants and discriminate between faster and slower growth phenotypes. Two *Centella asiatica* phenotypes from South Africa is modelled using the modified Gompertz model and the results showed that the *C. asiatica* Type-1 exhibited a faster growth rates and a shorter lag period at 0.152 day⁻¹ and 2.313 day than another phenotype; *C. asiatica* Type 2 with a growth rate and a lag period of 0.067 day⁻¹ and 3.363 day, respectively. The data indicates that different phenotypes of *C. asiatica* can have different growth rates and lag period and this can be important for selection of phenotypes to be used as the best bioactive peptides producer.

Keyword: *Centella asiatica*; Phenotypes; Modified Gompertz; Growth rate; Lag period